

San Juan County Health & Community Services

On-site Sewage Program Plan

Adopted July 20, 2011
Revised 01/01/2020

This program plan applies to on-site sewage systems not designated by as Larger On-Site Systems.

Table of Contents

<u>INTRODUCTION:</u>	1
<u>SECTION ONE: PROGRAM GOALS AND OBJECTIVES</u>	1
<u>SECTION TWO: ON-SITE SEWAGE PERMIT PROCEDURAL REQUIREMENTS</u>	2
1. <u>PERMIT REQUIREMENTS</u>	2
2. <u>DESIGN, STAKE-OUT AND SITE INSPECTION</u>	3
3. <u>NOTIFICATION AND INSPECTIONS</u>	4
4. <u>RECORD DRAWING, SYSTEM START-UP & FINAL APPROVAL</u>	5
5. <u>DESIGN RENEWALS</u>	6
<u>SECTION THREE: DESIGN SUBMITTAL REQUIREMENTS</u>	6
1. <u>PROPERTY AND APPLICANT INFORMATION</u>	6
2. <u>DESIGN PARAMETERS - DRAWINGS AND SKETCHES</u>	7
3. <u>PROPRIETARY SYSTEM DESIGN AND INSTALLATION</u>	7
<u>SECTION FOUR: DESIGN AND INSTALLATION REQUIREMENTS</u>	7
1. <u>COMMUNICATION</u>	7
2. <u>FLOW CALCULATION</u>	8
3. <u>SEPTIC TANKS</u>	8
4. <u>PUMP TANKS</u>	8
5. <u>WATERTIGHT TESTING (SEPTIC TANKS AND PUMP TANKS)</u>	8
6. <u>SLOPE OF LINES</u>	9
7. <u>TRENCH SYSTEMS</u>	9
8. <u>USE OF DISTRIBUTION BOX</u>	9
9. <u>USE OF VALVES</u>	10
10. <u>HORIZONTAL SEPARATION</u>	10
11. <u>DOSING VOLUMES</u>	12
12. <u>USE OF CURTAIN DRAINS</u>	12
13. <u>CONDITIONS DURING INSTALLATION</u>	Error! Bookmark not defined.
14. <u>SOURCE OF SAND</u>	12
15. <u>SMALL DIAMETER PIPES</u>	12
16. <u>DRIP IRRIGATION</u>	12
17. <u>PRESSURE</u>	
CHECKS	12
18. <u>RESERVE</u>	
AREAS	12
<u>SECTION FIVE: OPERATION AND MAINTENANCE REQUIREMENTS</u>	13
1. <u>MAINTENANCE FEATURES</u>	13
2. <u>INSPECTION FREQUENCY</u>	13
3. <u>RECORDS</u>	14
4. <u>SYSTEM UPGRADES</u>	14
<u>SECTION SIX: COMPLAINT RESPONSE & ENFORCEMENT</u>	14
<u>SECTION SEVEN: PROGRAM FORMS & PUBLIC EDUCATION</u>	14
1. <u>CURRENT LIST OF AVAILABLE FORMS & EDUCATIONAL MATERIALS</u>	14
2. <u>REVIEW OF FORMS & EDUCATION MATERIAL</u>	15
<u>SECTION EIGHT: QUALITY CONTROL/QUALITY ASSURANCE</u>	16
1. <u>JOINT INSPECTIONS</u>	16
<u>APPENDIX 1: EXISTING SYSTEM REQUIREMENTS</u>	16

INTRODUCTION:

This plan was developed to describe San Juan County Health & Community Service's on-site sewage program policies and procedures. It is the intent of this plan to identify and focus on-site sewage program efforts on those practices that have the greatest potential impact on public health. The plan is broken into eight sections detailing: goals and objectives, permit requirements, design submittal, design and installation requirements, operation and maintenance requirements, complaint response, public education, and quality control/assurance. By focusing our efforts as detailed in this plan, we will be able to maximize public health protection with existing staff.

SECTION ONE: PROGRAM GOALS AND OBJECTIVES

The goal of the San Juan County Health & Community Service's On-site Sewage Program Plan is to protect the public health in San Juan County through a comprehensive on-site sewage program. A comprehensive program includes providing public education, ensuring on-going operation and maintenance, improving communication between the designer, installer and Health department staff, and enforcing applicable codes and regulations. The following objectives were developed to meet and improve our on-site sewage program goal:

- Objective #1: Ensure all Identified Failures are repaired within 360 days.
- Objective #2: Continue to increase the Operation & Maintenance Compliance Rate. Including ensuring 100% of Property Sales have required inspections & upgrades.
- Objective #3: Conduct Quality Control/Quality Assurance Inspections of Wastewater System Inspectors and homeowners.
- Objective #4: Review Design Applications within 14 days.
- Objective #5: Improve Quality of Design Drawings (e.g. cross sections, improve contours, more accurate plot plans, etc...). This includes providing examples to designers on expectations.
- Objective #6: Provide On-line Reporting Capabilities for O&M & Pumper Reports.

SECTION TWO: ON-SITE SEWAGE PERMIT PROCEDURAL REQUIREMENTS

1. PERMIT REQUIREMENTS

A. New or Repair Septic Systems

San Juan County Health & Community Services (Health Department) requires an approved On-site Sewage Design for a variety of activities, including, installing new systems or repairing failing systems. The table below lists a variety of on-site sewage activities; whether or not a design is required and the appropriate fee category. Activities not listed may require a design. Therefore, property owners, designers and installers are encouraged to contact the Health Department to determine if an activity not listed below requires a design application.

Table 1: Septic Activity & Appropriate Design Requirements

Septic Activity	Design Required (Yes/No)	Appropriate Fee
Install new system	Yes	Sewage Design Application
Design revision to expired permit –	Yes	Sewage Design Application –
Design revision to a current permit – Drainfield in different location (new test holes required)	Yes	Sewage Design Application
Design revision to a current permit – Drainfield in same location (using existing test holes)	Yes	Existing Design Revision
Install a repair system	Yes	Repair Design Application
Design resubmission – Initial design not approvable	No	N/A – covered under original design fee
Add a new tank or replace and abandon an existing tank	Yes	Existing Design Revision Application
Upgrade system to current code	Yes	Sewage Design Application
Replace a drainfield lateral	Yes	Repair Design Application
Add to drainfield	Yes	Existing Design Revision Application
Replace sand filter, ATU or other proprietary treatment device with another technology	Yes	Repair Design Application
Repair sand filter, ATU or other treatment device	Yes Non-Conforming	Repair Design Application
Replace portion of drain pipe or any piping component	No	N/A
Replace pump, floats, screens	No	N/A
Abandon septic system/privies/fixtures	No	N/A
Repair or replace D-box	No	N/A
Add additional cover to existing non-failing system	No	N/A
Remove roots from drainfield	No	N/A
Replace septic tank baffles	No	N/A
Replace portion of drain rock or gravelless chamber	No	N/A

B. Existing Systems

Many parcels have an existing septic system already installed. Individuals wanting to utilize an existing system for a building permit proposal may be allowed provided the system is not failing, complete records are on file and the proposal does not exceed the design flow rates. Existing systems not meeting these requirements may be utilized. Complete requirements for utilizing existing systems can be found in Appendix 1.

2. DESIGN, STAKE-OUT AND SITE INSPECTION

A. Design Submittal

The first step is to have a State Certified Designer complete a sewage design application, provide test holes for inspection, and submit the design with the appropriate fee to the Health Department. The designer shall identify and stake the location of the soil test holes and stake the perimeter of the primary and reserve drainfield areas on site. This will alert homeowners of these critical developmental features so that building and excavation activities can be controlled appropriately. This will also allow health department staff to confirm the adequacy of designs prior to installation of systems. The design application will need to show the exact location of the test holes and provide measurable distances between test holes and property lines, or reliable reference point.

Property owners may design their own gravity distribution system provided the following conditions are satisfied:

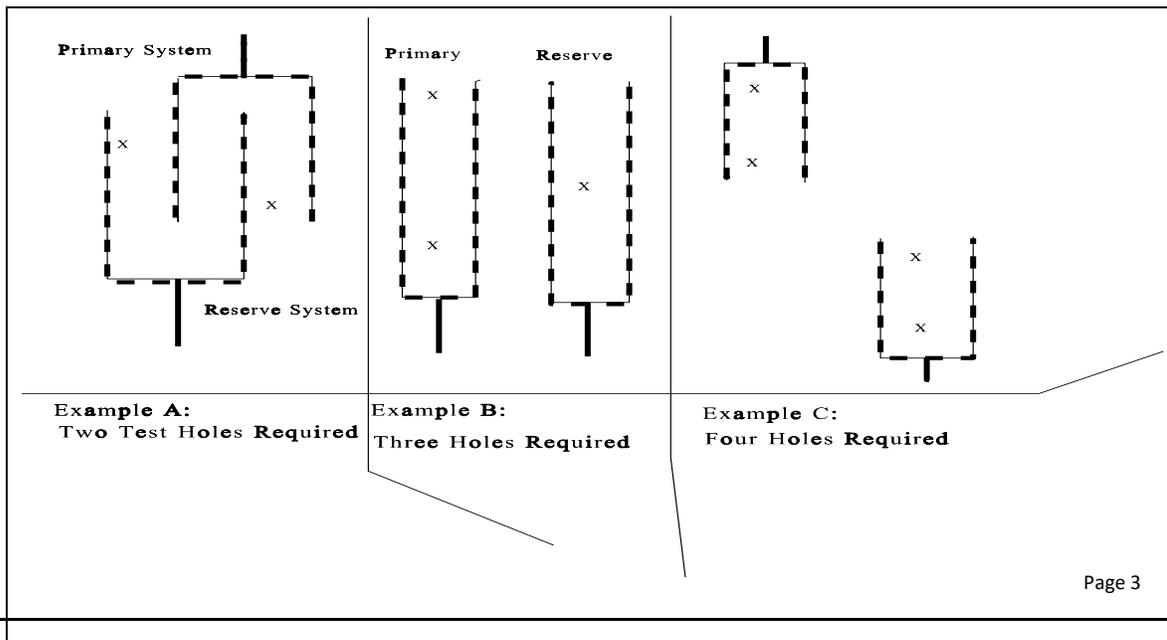
- A State Certified Designer has completed soil evaluations that indicate sufficient soil exists for a standard gravity system.
- The property is not adjacent to a marine shoreline.
- The property owner has met with the Environmental Health Specialist to review design requirements.

Do not submit the design application until the test holes have been excavated and are ready for inspection. Ideally, the soils will be evaluated by the Health Department prior to submittal.

B. Number and Location of Test Holes

A minimum of 2 to 4 test holes are required per site, depending on the location of the reserve repair area.

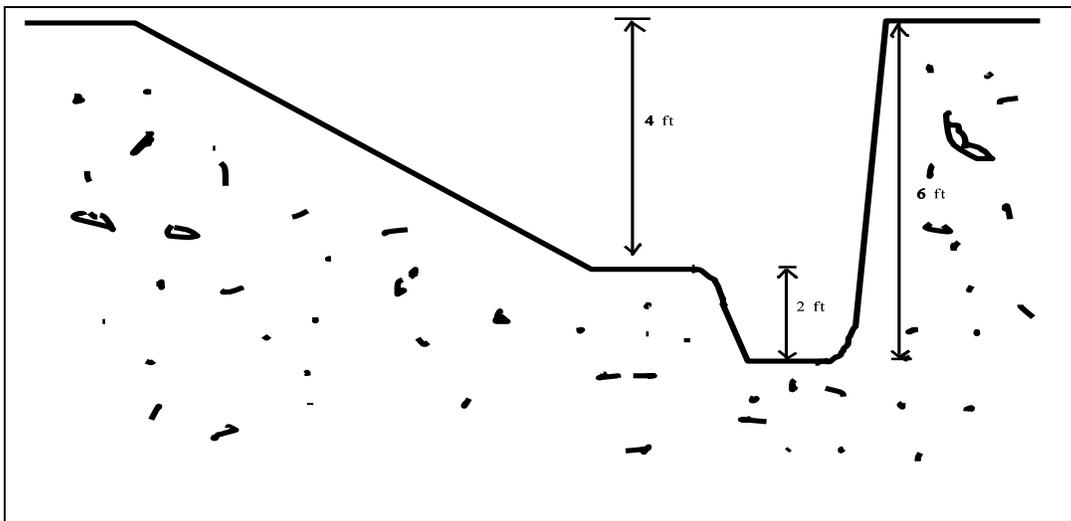
- If the reserve area is located interior to the primary system (Example A, below), a minimum of 2 test holes are required.
- If the reserve area is located contiguous to the primary system (Example B, below), a minimum of 3 test holes are required.
- If the reserved area is located in an area separated from the primary system (Example C, below), a minimum of 4 holes are required.



C. Dimensions of Test Holes

Test holes shall be excavated to sufficient dimensions to adequately evaluate the soil characteristics and should extend to a depth and width to verify the vertical separation of the proposed design. Stopping at a shallower depth is allowed if a restrictive layer is encountered. Holes deeper than four feet shall have one end sloped for easy ingress and egress.

Open test holes can be a safety concern to children and animals. All test holes must be filled once the soil evaluation has been completed. The Designer shall arrange to have Health Department staff on-site to confirm soil conditions prior to back filling the test holes. In situations where this is not possible, (e.g., staff not available) the Designer must contact the Health Department and arrange an alternative. After consultation with the Health Department, the holes can be backfilled once the soils are evaluated and digital images of the soil profile have been obtained by the Designer.



Note: Safety is a legitimate concern of both backhoe/excavator operator and Health Department staff. Holes that are excavated deeper than 4 feet shall have a 4-foot deep shelf. The end of the shelf should then be ramped up to the ground surface. This allows staff to enter and exit the hole via the ramp, and to examine the sidewall without going deeper than 4 feet by standing on the shelf.

D. Health Department Review

Submitted design applications are initially routed to the San Juan County Department of Community Development for a “Critical Area” review. The applications are reviewed to ensure proper setbacks to critical areas (e.g. wetlands, hazardous slopes, and endangered species habitats) are maintained. The Health Department then reviews the design for compliance with State and local regulations. If in compliance, the design is approved.

Approved designs will be signed and dated by the Health Department. If the design is not signed and dated it shall not be installed.

3. NOTIFICATION AND INSPECTIONS

Proper installation of on-site sewage disposal systems in San Juan County requires a partnership between designers, installers, the Health Department and the property owner. Communication is

essential to this partnership. Listed below are the three steps that are necessary to ensure the installations can be completed and approved.

A. Sewage Installation & System Start-up Verification Permit

The first step in beginning the installation process is for the installer to obtain a Sewage Installation & System Start-up Verification Permit from our department. This permit shall be obtained prior to beginning construction. Installation permits are valid for six months. However, they may be extended for an additional six months at the discretion of the Health Department, (e.g. site conditions prevent installation).

B. Pre-Construction Contact

Once the Sewage Installation & System Start-up Verification Permit number has been obtained, the installer shall contact the designer of the system (hereafter “the Designer”). This contact must occur prior to beginning construction and will ensure the Designer and installer are in agreement, limiting potential issues with the installation. Items that should be discussed include any special installation issues, determining if a pre-construction meeting is necessary, and identification of the inspection requirements. Work may not start until the designer has been contacted. The installer shall obtain the signature of the Designer on the installation permit under pre-construction meeting. If the Designer of the system is not available due to an unforeseen circumstance (e.g. retirement), the installer can contract with another designer upon consultation with the Health Department.

C. Designer & Health & Community Services Inspections

During the pre-construction contact, the Designer will determine the number and type of inspection(s). The number of inspections may vary depending upon the site. For example, one installation may only require a single inspection by the Designer whereas another more complex installation may require three to four inspections. Inspections may include pre-construction, trench/infiltration surface installation, pressure test, and cover. Finally, the Health Department may conduct a final installation inspection. This can be done with or without the Designer present.

Installers shall notify the Designer and Health Department when ready for inspection of the trench/infiltration surface and pressure test prior to cover. If the Health Department is not available, the installer will need to have the Designer conduct the inspection. If neither are able to be present, upon approval of the Health Department, the installer shall take photos or digital images of the trench/infiltration surface and the pressure test. If the inspection is completed by a designer and not the Health Department, the Designer cannot also be the installer.

Designers who sign off on Installation and Start-up Permits are verifying that the system is installed according to the approved design. This includes verifying the pressure test and ensuring the trench bottoms/infiltration surface area is level and constructed properly.

4. RECORD DRAWING, SYSTEM START-UP & FINAL APPROVAL

A. Record Drawing

Once the installation has been completed and approved, the installer shall be responsible for contracting with a designer to complete the record drawing of the system. The record drawing will verify the installation was completed in accordance with the approved design and contain the information listed on the Health Department’s *Record Drawing and Installation Permit Checklist*. Any deviations from the approved design must be documented on the record drawing by the Designer.

B. Installation & Record Drawing Approval

The installer will be responsible for submitting the completed record drawing, to the Health Department for final review. The record drawing shall be submitted with the *Installation and Start-up Permit* and fee within 60 days of completing the installation. The record drawing will be

reviewed and approved by the Health Department.

If the system is not ready for Start-up within that time period, the file will remain active until the Health Department is notified in writing of the Start-up. The system will not receive a “final approval” until the system start-up & verification has been completed (see C below).

C. *System Start-up Verification & Final Approval*

On-site sewage treatment and disposal systems shall not receive “final approval” until a system start-up inspection has been completed by the Designer or Installer. The system start-up inspection must occur after the system has been connected to the structure, power installed (if applicable), and all components tested to verify operation. Once said inspection has occurred, the Designer or Installer is required to sign and date the Sewage Installation & Start-up Verification Permit. Once signed, the Health Department will conduct a final review and issue a “Final Approval.”

5. DESIGN RENEWALS

A. *New, Expanding and Alteration On-site Sewage Designs*

Designs are valid for five years from the date of issuance. Designs are eligible to be renewed one time only for an additional three years from the original date of expiration. The applicant is responsible for renewing the design.

- i. To be considered eligible for a renewal the applicant must submit a request with the adopted review fee, either prior to the expiration date or within three years after the original design expires. **The review fee is not refundable.**
- ii. The Design will be reviewed to determine compliance with current State and Local sewage codes. Designs found to be in compliance with the codes will be renewed for three (3) years from the original expiration date (for example, a design that expires on 01/01/20 will be renewed until 01/01/23). Minor modifications (e.g. risers on septic tanks, timer controls, etc) may be required to be in compliance. Changes noted on the design must be incorporated into the installation.
- iii. Designs not in compliance with current codes will not be renewed (*note: designs that have not expired will be considered valid until the original expiration date*) and will expire if not installed.
- iv. Incomplete installations such as those where the septic tank has not been installed will be subject to the same protocol. If the entire installation is not completed within the valid time period, the design shall expire and a new design, meeting current codes, will be required to receive a Final installation approval. If the septic tank is the only uninstalled component of the system when renewal expires, a “tank only” design shall be required for septic tank installation in order to complete the system.

Note: This procedure does not apply to repair designs. Repair designs are valid for one year from date of issuance. Repair designs not installed within a year shall be subject to a full design fee and action under the departments Enforcement Policy.

SECTION THREE: DESIGN SUBMITTAL REQUIREMENTS

1. PROPERTY AND APPLICANT INFORMATION

Information in these sections identifies the parcel, applicant, designer, application type, and system type. This information is needed for the design to be accurately filed, to determine the appropriate fee and for use by the Health Department to review the design.

2. DESIGN PARAMETERS - DRAWINGS AND SKETCHES

This portion of the design requires drawings that provide sufficient detail to allow the design to be reviewed and the system to be installed. The application and design drawings shall include all the information listed on the Health Department's *Sewage Design Application Checklist* if applicable.

A. *Scaled Plot Plan*

This drawing needs to show the placement of the septic system in relationship to the overall developmental plan for the property.

B. *Scaled Layout Sketch*

This drawing shows the detail of the drainfield layout and details of the system design. The layout sketch is intended to be a close-up of the portion of the plot plan where the septic system is located.

C. *Cross-Section Sketch*

This drawing shows the depth from original grade of the septic system components. The cross-section sketch is intended to be used both as a guide for system construction and as verification that vertical separation and component depths meet code. At a minimum, a cross-section sketch is needed for the drainfield indicating the maximum trench depth.

D. *Elevation Sketch*

This drawing shows the difference in elevations system components and various property features. This sketch is similar to the cross-section sketch but must include all system components (tank(s), treatment devices, & drainfield), structures, roads, cuts, and other property features. The sketch is intended to verify elevation differences and ensure proper setbacks.

3. PROPRIETARY SYSTEM DESIGNS AND INSTALLATION

A. Design applications for proprietary systems shall include a copy of the signed and notarized Environmental Covenant. The Covenant may be recorded at the time of design application. If the Covenant is not recorded at the time of design application, it will remain with the design and must be recorded prior to a permit to install being issued for the approved design.

B. At the time the proprietary system is installed, the manufacturer or authorized representative shall execute a Proprietary Treatment Products Service Agreement with the owner and the service provider. The agreement shall include an initial two-year service policy ensuring that four inspections are completed by a wastewater inspector licensed in San Juan County who is also certified by the manufacturer or authorized representative. The inspections shall be completed after the start-up of the system (scheduled once every six months over the two-year period). The cost of the two-year initial service policy shall be included in the purchase cost of the proprietary system.

C. The Health Department shall not grant final approval of the Installation/Start-Up Permit until a copy of the signed Proprietary Treatment Produces Service Agreement has been submitted.

SECTION FOUR: DESIGN AND INSTALLATION REQUIREMENTS

1. COMMUNICATION

Proper installation of on-site sewage disposal systems in San Juan County requires a partnership between the property owner, designers, installers, and the Health Department. Communication is essential to this partnership.

Designers and installers have a responsibility to communicate with each other and with the Health Department when they find site conditions different than those listed in the permit or design.

The Health Department has a responsibility to protect public health by developing the most effective permitting process possible and being accessible to designers, installers, and the public.

2. FLOW CALCULATION

Design flow calculations for single family residences are found in WAC 246-272A.

Design flows for other facilities (e.g. commercial buildings, restaurants) must be based on projected flows from comparable facilities or calculated using the EPA design manual. The design must include calculations and source used to determine the proposed design flow.

3. SEPTIC TANKS

A. Install only state-approved two-compartment septic tanks with a minimum volume based on the number of bedrooms in the home, as follows:

Number of Bedrooms	Volume of Tank (in Gallons) – Gravity Systems	Volume of Tank (in Gallons) – Pressure Systems w/Vaulted Pump	Volume of Tank (in Gallons) – Pressure Systems w/Separate Pump Chambers
1-3	1,000	1,250	1,000 Septic Tank + 500 gallon pump chamber)
4	1,000	1500	1,000 Septic Tank + 750 gallon pump chamber
5 or more	Add 250 gallons per bedroom to the initial 1000 gallons	Add 250 gallons per bedroom to the initial 1500 gallons	Add 250 gallons per bedroom to septic tank & pump chamber

Note 1: For Facilities handling residential strength sewage, other than one single-family residence, size the septic tank at 1.5 times the daily design flow with a minimum of 1000 gallons.

- B. Place septic tank close to house to minimize the need for step-downs.
- C. Install clean-outs and inspection accesses for both compartments and baffles at or above finished grade
- D. Install tanks to be water tight, with protection against floatation and groundwater intrusion.
- E. Tightline 3 feet to and out of septic tank using ASTM 3034 pipe and fittings.
- F. Make sure the inner partition separating the compartments is intact and no gaps are seen between the partition and the side of the tank. Also, make sure when using tanks with concrete baffles that all residual concrete is knocked off leaving a smooth surface.

4. PUMP TANKS

- A. Install only state-approved pump tanks with at least the minimum volume based on the number of bedrooms the system is designed for,
- B. Install clean-outs and inspection accesses on all compartments and baffles at or above finished grade; and
- C. Install tanks to be water tight, with protection against floatation and groundwater intrusion.

5. WATERTIGHT TESTING (SEPTIC TANKS AND PUMP TANKS)

- A. All new septic tanks and pump tanks must be leak-tested prior to backfilling to confirm tanks are water-tight. All tanks shall be filled to 2 inches into the riser, and allowed to soak for 24-hours. After 24-hours return and refill tank to 2 inches into the riser. After refilling tank, the tank shall be monitored for a period of one hour. Tanks that show visible leakage on the exterior or a water level drop (more than an 1/4 inch) during the monitoring period must be rejected and/or repaired.
- B. For alteration and repair designs, existing septic and pump tanks shall be replaced unless they pass a watertight test as described above. Prior to the watertight test, the tank must be pumped and risers

installed on all access ports. The watertight test must be verified by either the Health Department or the Designer. If the installer is also the Designer, the test must be verified by either the Health Department or another designer.

Note: Designers may specify additional leak testing requirements based upon site conditions or other factors. Installers are encouraged to clarify leak testing requirements with the designer during the pre-construction meeting.

6. SLOPE OF LINES

A. *Tightline From House*

Maintain 1/4 inch drop per running foot (2% slope). Use a sweep or two 45-degree fittings and a clean-out when a step-down is necessary. Locate step-downs as close to house and as far from septic tank as possible to avoid unnecessary turbulence in septic tank.

B. *Gravity Tightline From Septic Tank*

Maintain minimum of 1/8 inch drop per running foot (1% slope) to the drainfield.

7. TRENCH SYSTEMS

A. *Trench Depth*

Excavate trench bottom no deeper than specified in the design, however, trench bottom shall be at least six inches deep and not deeper than 3 feet from finish grade. Contact the Designer and Health Department immediately when conditions beyond the installer's control (such as building plumbing depth) necessitate a trench deeper than specified in the design; the Health Department will consider such situations on a case-by-case basis. Installations contrary to the design or deeper than 3 feet will require specific approval from the Designer and Health Department.

B. *Trench Width*

Measure trench width at bottom of trench. May be up to 3 feet wide at designer's discretion, unless otherwise specified on the permit.

C. *Trench Layout*

Limit length of any one gravity trench to 100 feet. Make all trenches and laterals equal length when using gravity distribution. Separate trenches by a minimum of 6 feet of original, undisturbed soil. Follow ground contour with each trench. Determine trench length based on total square footage of trench bottom specified on permit.

NOTE: It is extremely important that trench bottoms are excavated level.
--

D. *Trench Layout – Special Considerations for Sloping Sites*

Divide gravity flow equally between trenches by using a distribution box (d-box) located at or above the uppermost trench.

E. *Observation Ports*

Install two (2) SSAS (subsurface soil absorption system) lateral inspection ports per drainfield lateral. The ports are to be capped at or extend at least four inches above grade and located within approximately six feet from each end, anchored in place and provide for an unobstructed view of the trench bottom or infiltration surface.

F. *Trench Bottom*

The trench bottom shall be level within +/- 0.5 inch from end to end and side to side, smooth, free from compaction and smearing that could occur during installation and raked immediately prior to cover.

8. USE OF DISTRIBUTION BOX (d-box)

A. D-box construction must allow unobstructed access to all ports, in order for the Health Department

to verify proper installation.

NOTE: D-boxes with only a small observation port on their tops are not acceptable.

- B. When the d-box outlet that is located directly across from the inlet is used, the inlet shall be diverted downward in order to prevent short-circuiting of effluent across the d-box.
- C. D-boxes are required to achieve equal distribution of effluent on sloping sites and on flat sites where two or more drainfield laterals are utilized.
- D. Install d-boxes on undisturbed or compacted soil. In addition, the d-box shall be bedded in concrete to reduce risk of settling.
- E. The outlets of the d-box shall be water leveled by the installer prior to the final inspection by the Designer or the Health Department.

Note: If wet mortar is involved, leave the water level just below the mortar seal. During final inspection, the Health Department staff will insert an object into the d-box to temporarily displace enough water to overflow the outlets and verify compliance.

- F. The Health Department recommends use of Speed Levelers or equivalent for easy, precise equalization of d-box outlet flow.
- G. Access to grade shall be provided to allow for on-going operation and maintenance.

9. USE OF VALVES

- A. Check valves shall be installed on all pressurized laterals that are up-gradient from the septic or pump tank or up-gradient from each other.
- B. Pressure compensation valves, or equivalent to prevent syphoning shall be installed on all pressurized drainfields or mounds that are down-gradient from the septic or pump tank.
- C. Flow control valves (gate or ball valves) shall be installed on all pressurized laterals in order to equalize flow to each lateral and to adjust the lateral discharge rate to that in the approved design. A single valve is allowed for a mound or bed if the Designer can demonstrate it can provide for equalization of flow to each lateral and equalize orifice discharge rate and it is installed adjacent to the mound or bed.
- D. All valves shall be constructed so they are accessible for inspecting, adjusting, and replacement and protected from damage.

10. HORIZONTAL SEPARATION

- A. The Designer shall identify the location and horizontal separation setback distances on the plot plan and specify sleeving construction procedures for any system that includes a sewer transport line that does not meet the horizontal separation distance to a water supply line. In these circumstances, installers shall construct sewer transport lines in accordance to WAC 246-272A-0210(6) and C1-9 of DOE: "*Criteria for Sewage Works Design*," Pub 98-37.
- B. The Designer or installer shall obtain Class A waivers for reduced setbacks where applicable.

11. DOSING VOLUMES

- A. The maximum daily dosing volume of effluent to a pressurized drainfield, mound or bed shall not exceed the daily design flow.

- B. All pressure distribution systems shall be timed-dosed.

12. USE OF CURTAIN DRAIN

A. *Curtain Drain Approval*

The Department may approve designs based on a proposed curtain drain to achieve the required vertical separation. When reduced design standards for sewage systems are proposed based on an increase in vertical separation provided through the use of a curtain drain, the curtain drain must be proven effective. Therefore, the curtain drain shall be evaluated by the Designer twice during the wet season in each of the first two years of operation, in January and March to verify that the design vertical separation is being maintained. The design will be conditioned that “Enhanced Treatment must be installed if the curtain drain fails to adequately lower the water table and achieve the required vertical separation.”

B. *Trench Discharge*

Trench should discharge at least 30 feet downslope from the lowermost drainfield lateral. At least the last 3 feet of the discharge end of the curtain drain pipe should be graveled so that the end of the line will not be exposed.

C. *Trench Depth*

Trench depth must be a minimum of 6 inches into underlying restrictive layer.

D. *Trench Width*

Trench width should be a minimum of 12 inches.

E. *Slope*

Trench and pipe slope should be a minimum of 1% in order to properly drain.

F. *Observation Ports*

A minimum of two observation ports shall be installed; one between the curtain drain and the upper most lateral and one, ten feet below the lowest lateral. The observation ports shall extend into the restrictive layer. Observation ports shall be constructed of 4-inch diameter perforated pipe, wrapped in filter fabric and bedded in clean, washed drain-rock or pea-gravel.

G. *Perforated Pipe*

Perforated pipe shall be used running the length of the intercepting portion of the curtain drain. The pipe should be smooth, 4-inch diameter ASTM D2729, D3033, or D3034, and perforations in drainpipe should be oriented the same as for drainpipe used in a gravity drainfield (holes @ 5:00 & 7:00 o'clock). Corrugated drainpipe, 4-inch diameter, is also acceptable.

H. *Protection from Clogging*

Curtain drains must be protected from infiltration of fine soil particles that can seal the drain. In addition, 6-mil plastic must be utilized on the downslope sidewall of the curtain drain trench to improve the drains effectiveness.

13. CONDITIONS DURING INSTALLATION

A major cause of sewage system failure is installation of the system during periods when the soil is nearly saturated with water. Such conditions result in finer textured soils smearing and compacting during construction of the system. Systems should therefore be installed during dry weather conditions.

During the wet season period, October 1 to April 30, septic systems, shall not be installed without prior approval from the Designer and the Health Department. Prior to the issuance of the installation permit,

the Designer will need to provide written confirmation to the Health Department that conditions are suitable for installation.

Also, during the wet season period, after any inclement weather condition that could be detrimental to the installation of a septic system, regardless of when the installation permit was issued, installers shall consult with the Designer to determine if the installation should commence and shall inform the Health Department of the determination. If the Designer has determined that the compromised site conditions do not support the installation, the installer shall not begin the installation until further review and approval from the Designer

14. SOURCE OF SAND

Sand must be from a commercial gravel pit and meet design specifications. The design must contain the sand specifications for the system. A copy of a sieve analysis/certification performed on the sand must be provided with the record drawing.

Commercial gravel pits may perform their own sieve analyses, provided the method used conforms to ASTM C-136 Method for Sieve Analysis of Fine and Coarse Aggregates and ASTM E-11 Specifications for Wire-Cloth Sieves for Testing Purposes, Annual Book of ASTM Standards, Volume 04.02.

15. SMALL DIAMETER PIPE

Transport, manifold, and lateral pipes must be Class 200 or better and a minimum of 1 inch in diameter.

16. DRIP IRRIGATION

All drip irrigation fields shall be preceded by the treatment device that meets Treatment Level D or better. The ends of each drip line must be left exposed for final inspection by the Health Department to verify: 1) the lines follow the contours; 2) total linear footage installed; and 3) installation depth. The Designer is responsible for inspecting the headworks to insure proper installation and flow requirements.

17. PRESSURE CHECKS

The Health Department shall verify that there is a minimum residual head and uniform distribution (pressure test) for pressure distribution, mound and sand filter systems. The pressure test shall consist of confirming uniform distribution by comparing orifice spray heights and the minimum residual head specified on the design for each lateral. The installer shall contact the Health Department a minimum of 24 hours prior to the pressure test to schedule an on-site visit. If a sanitarian is not available, the installer shall contact the Designer for verification. If a sanitarian or the Designer are not available, after consultation with the Health Department, the installer can provide verification by taking digital images of the squirt height of each lateral and the trench bottom. During the start-up inspection, the pump must be cycled and the height of the squirt from each lateral measured. The squirt height must be recorded on the record drawing. Other pressure check alternatives will be considered for approval by the Health Department on a case-by-case basis.

Note: All systems must be pressure tested prior to final approval. If permanent power is not available, generators or other means of supplying power and portable water storage tanks may be used. Pressure tests not observed by Department staff shall require documentation, such as digital images or verification from the Designer (signature on Permit to Install), be submitted with the record drawing.

18. RESERVE AREAS

A full size reserve area shall be designated on all designs. This includes designs for enhanced treatment where a 50% reduction in drainfield sizing is allowed.

SECTION FIVE: OPERATION AND MAINTENANCE REQUIREMENTS

1. MAINTENANCE FEATURES

- A. New Installations or existing system that are being repaired or altered including tank replacement.
- i. Access risers shall be installed on all septic tank and pump tank access ports at or above final grade to allow for on-going operation and maintenance.
 - ii. Clean-outs - Pressure Distribution, Mound & Sand Filter Systems
 - a. Install clean-outs at the end of each lateral with easily removable caps by using sweeps, or two 45's are allowed if 1¼" or larger laterals are used.
 - b. Be protected and marked.
 - iii. Observation Ports – All Systems
 - a. Install a minimum of two observation ports per drainfield lateral and one observation port per sand filter. For drainfield laterals place a port within approximately 10 feet from each end. In sand filters, place ports to detect ponding at both interfaces between drainrock and sand.
 - b. Construct observation ports using a minimum of 4 inch diameter PVC, at least a minimum of 4 inches above finished grade, or enclosed in durable, accessible box.
 - c. Observation ports must be anchored in place and equipped with easily removable caps and must be constructed to provide an unobstructed view of the drainfield lateral trench bottom.
- B. Existing Systems
- i. Existing systems not equipped with maintenance components will be required to install the following features at time of sale:
 - a. Access risers on all septic and pump tanks access ports at or above final graded to allow for on-going operation and maintenance.
 - b. Access riser installed on "D"-boxes, to provide for visual access at grade to evaluate equal flow or if the d-box is at grade the location must be clearly marked for identification.
 - c. Observation ports in the drainfield, sand filter or mound to the infiltration surface and secured/anchored (see attached diagram). Drainfield observation ports must be installed within 10 feet from each end of each lateral, anchored in place, equipped within easily removable caps and constructed to provide an unobstructed view of the trench bottom. Sand filter and mound observation ports shall be installed as per current DOH Recommended Standards and Guidance.
 - d. Cleanouts on pressure distribution laterals with removable caps using sweeps or 45's if 1¼" or larger laterals are used.
 - e. High effluent level audible and visual alarms on all pumps.
 - f. Effluent filters.
 - g. A new d-box if it is determined that it does not provide for equalization of flows to each lateral.
 - h. At least two curtain drain observation ports as described in *Use of Curtain Drains, Section 4, item 12, if the existing system is equipped with a curtain drain.*
- C. The installation of maintenance components shall be completed or verified by a designer, installer or licensed wastewater inspector.

2. INSPECTION FREQUENCY

The property owner is responsible for properly operating and maintaining the on-site sewage system per design standards. All sewage disposal systems shall be inspected on a regular basis to ensure proper operation; however, not all systems require the same inspection frequency.

- A. All systems shall be inspected in accordance with WAC 246-272A-0270. Said inspections must be completed as follows:
 - i. At least every three years for systems consisting solely of a septic tank and gravity subsurface soil absorption system (SSAA);
 - ii. Annually for all other systems unless more frequent inspections are specified by the local Health Officer.
- B. Systems serving commercial establishments (activity involving the sale of goods or services) must be inspected as follows:
 - i. Systems serving restaurants, markets, delis and/or other establishments preparing multiple meals shall be inspected quarterly or at the professional discretion of the Designer
 - ii. Systems serving transient accommodations including, Bed & Breakfasts, motels, hotels, resorts and transient rentals, shall be inspected annually;
 - iii. Systems serving other commercial establishments (e.g. offices, automotive center, etc.) shall be inspected annually.
- C. Community systems shall be inspected by a licensed wastewater inspector annually or more frequent at the professional discretion of a licensed designer.

3. RECORDS

There are many systems without adequate records. Therefore in order to identify unknown systems and to complete the records of known systems, a record drawing must be on file for all systems prior to obtaining a building permit or at time of sale. Said drawing must be completed by a licensed installer, a licensed wastewater system inspector or state certified designer.

4. SYSTEM UPGRADES

Seepage pits will be required to be upgraded to current design standards at time of sale or application for a building permit. If a conforming drainfield cannot be located onsite, then the department may consider allowing pretreatment to Treatment Level A with final disposal into the existing seepage pit.

SECTION SIX: COMPLAINT RESPONSE & ENFORCEMENT

All complaints and enforcement actions will be investigated and processed in accordance with the Environmental Health Enforcement Procedures.

SECTION SEVEN: PROGRAM FORMS & PUBLIC EDUCATION

1. CURRENT LIST OF AVAILABLE FORMS & EDUCATIONAL MATERIALS

A. Codes and Regulations

- i. DOH (2005), "Rules and Regulations of the State Board of Health for On-site Sewage Treatment and Disposal," WAC 246-272A
- ii. DOH "Regulations for On-site Sewage System Tanks," Chapter 246-272C WAC
- iii. SJCC 8.16 "Rules and Regulations of the San Juan County Board of Health Regarding On-site Sewage Disposal."

B. Program Forms

- i. Sewage Design Application

- ii. Repair Sewage Design Application
- iii. Sewage Installation Permit
- iv. On-site Sewage System Inspection Report
- v. On-site Sewage Pumpers Report
- vi. Environmental Covenant
- vii. Washington State Approved Proprietary Treatment Products Service Agreement

C. Informational Handouts

The following Recommended Standards and Guidance (RS&G's) Documents

- i. Alternating Drainfields
- ii. Dosing Gravity Drainfield Systems
- iii. Gravelless Distribution Products
- iv. Holding Tank Sewage System
- v. Intermittent Sand Filter Systems
- vi. Mound Systems
- vii. Pressure Distribution Systems
- viii. Proprietary On-site Wastewater Treatment Products
- ix. Recirculating Gravel Filter Systems
- x. Remediation Technologies and Processes
- xi. Sand Lined Trench Systems
- xii. Stratified Sand Filter Treatment Systems
- xiii. Subsurface Drip Systems
- xiv. Water Conserving On-site Wastewater Treatment Systems
- xv. Plants Suitable for Raised Leach Fields
- xvi. Hazards of Failing Septic Systems
- xvii. Sewage System Do's & Don'ts
- xviii. Why Do Septic Systems Fail
- xix. Save Money by Maintaining Your Septic System
- xx. Landscaping Your Drainfield
- xxi. How Often Should I Pump

2. REVIEW OF FORMS & EDUCATION MATERIAL

Program handouts, packets and forms shall be reviewed biennially. The program Environmental Health Specialist shall initiate and oversee the process.

The Environmental Health Manager shall provide the final approval.

A. Review procedures

- i. The program EHS shall review all forms and educational material every odd year. All critical changes or correction shall be made throughout the year as necessary.
- ii. Materials needing corrections or changes should be updated utilizing the "track changes" feature in Microsoft Word with a "Draft" watermark place on the document until all changes are approved.
- iii. All corrections or suggested changes shall be reviewed and approved by the Environmental Health Manager.
- iv. Final copies shall include an "update" date.
- v. All outdated material shall be removed and recycled.
- vi. The Environmental Health Manager shall ensure the most current electronic form is available in the shared files and on the web site.

B. Evaluation Criteria

- i. Information is current, reliable and error-free. Includes logo, phone numbers, web addresses and contact information.
- ii. Material is professional in appearance. Appropriate use of fonts, line spacing, and alignment.
- iii. Material is relevant to current program.

C. Review Documentation

Program staff shall maintain an Excel spreadsheet listing all forms, packets and educational material. The spreadsheet shall include dates the material was reviewed and if the material was updated.

SECTION EIGHT: QUALITY CONTROL/QUALITY ASSURANCE

1. JOINT INSPECTIONS

A. On-site

In order to contribute to uniform application of on-site sewage requirements in San Juan County, joint inspections shall be made with the on-site sewage Sanitarian and Environmental Health Manager twice per year.

APPENDIX 1: EXISTING SYSTEM REQUIREMENTS

NEW BUILDING PERMIT PROPOSALS

I. Existing On-site Septic System – Complete Records

Expansions – Increases in anticipated sewage flows by either increasing the number of bedrooms beyond the total approved on the septic permit or changing the use of the structure (e.g.: residential to commercial), or changes that would result in adverse impact on the existing system & reserve.

- **Requirements** – System and reserve must be in compliance with current codes. This typically will require submittal of a new or revised design showing how system will be expanded to accommodate increase flows.

Additions/Remodels – No increase in anticipated sewage flow or number of bedrooms and no structural or use changes that would adversely impact the existing system and/or reserve area.

- **Requirements** – System must be non-failing. In order to document the system is non-failing, the applicant must submit an On-site Sewage System Inspection form, from the past 3 years for gravity systems and within the past year for all other systems (pressure distribution, sand filters, aerobic units, etc.), documenting the non-failing status of the system. Note: Gravity systems installed within last 3 years are exempt from this requirement.

Structural Repairs – Routine maintenance and repair of roofs, foundations or walls without restructuring the basic floor plan of the residence.

- **Requirements** – Not applicable

II. Existing On-site Septic System – Incomplete Records

Expansions (see definition above) - System and reserve must be in compliance with current codes. This typically will require submittal of a new or revised design showing how system will be expanded to accommodate increase flows. Proposals to add onto or utilize the existing system will require completion of a record drawing for the existing system showing location, layout, depth to bottom of trench, soil type & depth of profile and other key components.

Additions/Remodels that Expand Building Footprint (but do not increase the load) - System must be non-failing. In order to document the system is non-failing, the applicant must submit an On-site Sewage System Inspection form, from the past 3 years for gravity systems and within the past year for all other systems (pressure distribution, sand filters, aerobic units, etc.), documenting the non-failing status of the system. In addition, a designer must complete a record drawing documenting the primary and reserve drainfield area.

Internal Remodels Only - System must be non-failing. In order to document the system is non-failing; the applicant must submit an On-site Sewage System Inspection form from the past 3 years for gravity systems and within the past year for all other systems (pressure distribution, sand filters, aerobic units, etc.), documenting the non-failing status of the system.

Structural Repairs (see definition above) – No requirements

Note: Systems installed after January 1, 1998, should have complete records on file. If no records can be found, the applicant must apply for an on-site septic permit (including fee), expose the ends of each lateral to verify length and layout, dig a test hole adjacent to the drainfield and two test holes in an area suitable for a reserve field. A designer must complete a record drawing and submit records for the system.